The influence of rumination and distraction on depressed and anxious mood: a prospective examination of the response styles theory in children and adolescents

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ORIGINAL CONTRIBUTION

The influence of rumination and distraction on depressed and anxious mood: a prospective examination of the response styles theory in children and adolescents

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Abstract The present study sought to test predictions of the response styles theory in a sample of children and adolescents. More specifically, a ratio approach to response styles was utilized to examine the effects on residual change scores in depression and anxiety. Participants completed a battery of questionnaires including measures of rumination, distraction, depression, and anxiety at baseline (Time 1) and 8–10 weeks follow-up (Time 2). Results showed that the ratio score of rumination and distraction was significantly associated with depressed and anxious symptoms over time. More specifically, individuals who have a greater tendency to ruminate compared to distracting themselves have increases in depression and anxiety scores over time, whereas those who have a greater tendency to engage in distraction compared to rumination have decreases in depression and anxiety symptoms over time. These findings indicate that a ratio approach can be used to examine the relation between response styles and symptoms of depression and anxiety in non-clinical children and adolescents. Implications of the results may be that engaging in distractive activities should be promoted and that ruminative thinking should be targeted in juvenile depression treatment.

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Introduction

Depressive symptoms are commonly experienced among youth. Various psychological theories have been proposed to explain individual differences in vulnerability for depression. A cognitive vulnerability account of depression has been outlined by Nolen-Hoeksema in the response styles theory (RST) [41–43]. The RST posits two main styles of responding to depressive mood: rumination and distraction. Rumination is a stable, trait-like, emotion-focused coping style that involves behaviors and thoughts that focus one's attention on depressive symptoms and the implications and consequences of these symptoms [41]. In contrast, distraction refers to the diversion of attention away from the depressed mood and turning it onto neutral or pleasant thoughts and actions [48]. According to the RST, engaging in ruminative responses to depressed mood will intensify and prolong depressive symptoms, whereas engaging in a distracting response style will lead to less intense and acute symptoms. The RST further assumes that sex differences in response styles emerge prior to sex differences in depression [45] and that women have a greater tendency to engage in ruminative responses to depressed mood, whereas men are more likely to use distraction when confronted with depressed mood.

Empirical research has addressed the predictions of the RST concerning the effects of rumination and distraction on depressed mood in adult samples. These studies have found that engaging in ruminative responses to depressed moods is related to both the onset of depressive episodes [27, 32, 44, 57], as well as to amplified and prolonged

periods of depressed mood states in adults [14, 30, 41–43, 52]. There is also good evidence for the relation between a ruminative response style and depressive symptoms in children and adolescents. A number of studies have found support for the prediction that youngsters who engage in ruminative responses to depressed mood display increased levels of concurrent depressive symptoms [2, 4, 38, 53] and rumination may also predict increases in depressive symptoms and the onset of major depressive disorder in adolescents [2, 11, 49, 53].

The findings for distraction are less clear. Studies examining the effects of distraction on depressed mood in adults have been inconclusive with some studies reporting beneficial effects in dysphoric individuals [12, 31, 34, 35, 37], and others not [27, 30, 48]. In youngsters, the effects of distraction on depressed mood are also inconclusive. Some studies have found support for distraction being associated with lower concurrent levels of negative mood states [38, 53, 64], whereas other studies did not [2, 4]. With respect to longitudinal studies, some support has been found for distraction to be associated with decreases in depressive symptoms over time [1, 2, 53, 64].

Although the RST was originally designed to explain individual differences in depression, there have been several attempts to investigate response styles (in particular, rumination) to other negative mood states. The majority of studies has shown a clear relationship between rumination and anxiety in adults [5, 8, 13, 19–21, 28, 39, 47, 55, 61–63] as well as in children and adolescents [17, 38, 40, 53], whereas some studies did not find meaningful associations between rumination and anxiety [16, 60]. As an aside, rumination has also been linked to increases in binge drinking and symptoms of alcohol abuse in adults [46] and adolescent girls [49], and to self-injurious behaviors and suicidal ideation [24, 36, 56]. Thus, rumination seems to be involved in a number of psychopathological disorders and behaviors and might be considered a transdiagnostic variable [22].

Traditional tests of the RST involve an examination of the response styles separately. A potential problem might be the contradictory predictions of rumination and distraction with respect to the effects on depressive symptoms. To overcome this problem, Abela et al. [1] utilized an additive or ratio approach to response styles. More specifically, the rationale behind a ratio approach assumes that multiple vulnerability factors independently influence depressive symptomatology and that the effect of one such variable can either add to or cancel out the effect of another variable and can be combined in a linear fashion. For example, high levels of distraction can cancel out the effects of high levels of rumination [1]. Applying ratio scores to response styles involves dividing rumination scores by the distraction scores of individuals. As such, high ratio scores indicate a greater tendency to be involved in rumination compared to distraction, whereas low ratio scores are indicative of a greater tendency to engage in distraction compared to rumination. In line with the prediction, high ratio scores of rumination and distraction/problem-solving were related to increased levels of depressive symptoms over time, whereas low ratio scores predicted decreases in depressive symptoms in children at risk for depression. The authors concluded that ratio scores were best for examining response styles [1].

This study sought to test predictions of the RST in a large community sample of children and adolescents. We utilized a ratio approach to determine whether the findings from Abela et al. [1] can be generalized to an unselected sample of children and adolescents. The association of ratio scores of response styles with symptoms of depression and anxiety was examined prospectively. We hypothesized that high ratio scores (greater rumination) would be positively associated with residual change in depressive and anxiety symptoms, whereas low ratio scores (greater distraction) would be negatively associated with residual change in symptoms of depression and anxiety. The current study examined a wide age range in order to be able to examine moderating effects of age on the relation between ratio scores and increases in symptoms of depression and anxiety over time. Finally, in line with past research, we also examined whether sex moderated the association between ratio scores and symptoms of depression and anxiety. A second aim of the study was to examine internal consistency and test–retest stability of the response styles.

Methods

Participants and procedures

A total of 830 children and adolescents were recruited from ten regular primary and three secondary schools in the Southern part of The Netherlands. In total, 50% of the participants attended primary school, whereas the remaining 50% were divided across pre-vocational secondary education (i.e., 16%), higher general secondary education (i.e., 23%), and pre-university education (i.e., 11%). The youngsters and their parents were informed about the purpose of the study (i.e., they were told that this study aimed to gain insight into the relation between negative thinking and depressed and anxious feelings), after which written consent was obtained from them. A total of 803 individuals agreed to participate, of which 770 children and adolescents (355 boys and 415 girls) completed a battery of self-report questionnaires (see measures) at baseline (Time 1) and follow-up (Time 2) assessment 8–10 weeks later. The mean age of the sample was 12.9 years

(SD = 2.1, range 10–17 years). Although ethnicity was not assessed, it was estimated that more than 95% of the youngsters were Caucasian. The self-report measures were completed during regular class time. The teacher and a research assistant were available to answer questions and to ensure confidential responding. The experimental protocol was approved by a local IRB.

Measures

Rumination and distraction

The children's response style scale (CRSS) is an instrument that measures response styles in youth [64]. It consists of 20 items, half of the items dealing with rumination (e.g., "When I feel sad, I think back to other times I felt this way"), the other half reflecting distractive response styles (e.g., "When I feel sad, I think about something I did a little while ago that was a lot of fun"). Items are rated on a five-point frequency scale with 1 = 'never' and 5 = 'always'. Total rumination and distraction scores range between 10 and 50. The CRSS is considered reliable in terms of internal consistency and test–retest stability, and validity is supported by significant associations with depression and alternative indices of repetitive negative thinking [38, 64].

Depression

The children's depression inventory (CDI) is a self-report instrument that assesses symptoms of depression in children and adolescents aged between 7 and 17 years [29]. It consists of 27 items that are rated on a 3-point Likert scale with 0 = 'not true', 1 = 'somewhat true', and 2 = 'very true'. Items are indicative of the cognitive, affective, and behavioral aspects of depression (e.g., "I am sad all the time"). Total scores range from 0 to 52. The CDI possesses high levels of reliability and validity [2, 29].

Trait anxiety

The trait version of the state-trait anxiety inventory for children (STAI-C) is a self-report instrument that assesses trait anxiety [58]. Trait anxiety addresses the frequency and intensity of anxious symptoms. Individuals scoring high on this scale tend to interpret situations as more threatening and dangerous than do individuals with lower scores. The STAI-C consists of 20 items, determining how individuals generally feel (e.g., "I feel confident"), which are rated on a 4-point Likert type scale ranging from 1 = 'almost never' to 4 = 'almost always' [58]. Total STAI-C scores range between 20 and 80. The STAI-C is a valid and reliable instrument of anxiety symptoms in children. Reliability in terms of internal consistency is good and test–retest reliability is adequate [18, 58].

Data analysis

The Statistical Package for Social Sciences (SPSS version 13.0) was used for computing descriptive statistics, correlations, carrying out *t* tests (i.e., to explore sex differences on the questionnaire scores), and to carry out the regression analyses. A series of regression analyses was carried out to investigate the association of the ratio scores with symptoms of depression and anxiety over time. Residual change scores were calculated for each individual, which involves a regression analysis to predict Time 2 CDI or STAI-C from Time 1 CDI or STAI-C scores. The Time 2 predicted CDI or STAI-C scores are subtracted from the actual Time 2 CDI or STAI-C scores. What remains is the residual gain score (i.e., the amount of gain that is not due to the influence of the initial Time 1 score) [59]. In accordance with the study of Abela et al. [1], the association between the ratio scores and the dependent variables were examined for children with low ratio scores (1.5 SD below the sample mean) and high ratio scores (1.5 SD above the sample mean). More specifically, a negative association between ratio scores and symptoms of depression and anxiety was expected in the first group, whereas a positive association between these variables was expected for the latter group. Further, the moderating effects of sex and age on the association between the ratio scores and symptoms of depression and anxiety were examined. Test–retest stability was assessed by means of intra-class correlation coefficients. The index alpha was set to 1% for all analyses.

Results

General findings

Before presenting the main results of the study, some general points need to be addressed. First, the assumptions for parametric statistics were evaluated. Homogeneity of variances as indicated by Levene's test and linearity were not violated. Further, all variables were normally distributed (i.e., skewness and kurtosis between −1 and +1) except for total CDI depression scores at T1 and T2. These total scores were positively skewed and were subjected to a square root transformation. This transformation was successful in 'normalizing' the depression scores. All variables were standardized prior to analyses.

Second, for individuals with more than 10% missing values on a questionnaire, total scores on that particular questionnaire were not computed. In the case of less than 10% missing values, a regression technique was used to

Table 1 Descriptive statistics for the questionnaires at Time 1 and Time 2 (8–10 weeks later) for the total group and for boys and girls

Self-report measure	Total group (N_{range} = 764–770)			Boys (N_{range} = 352–355)		Girls (N_{range} = 412–415)		t	P	η^2
	Mean	SD	Alpha	Mean	SD	Mean	SD			
Age	12.9	2.1	–	12.9	2.1	12.9	2.0	0.55	0.58	0.001
CRSS Rumination	25.6	8.0	0.88	23.2	7.7	27.7	7.7	8.3	<0.001	0.07
CRSS Distraction	27.4	8.5	0.91	26.7	9.1	27.9	7.9	2.0	0.05	0.005
Ratio score	1.03	0.50	–	0.96	0.45	1.09	0.53	3.8	<0.001	0.02
Time 1 CDI	7.9	7.3	0.90	7.1	6.5	8.6	7.9	3.0	0.003	0.01
Time 1 STAI-C	31.4	7.3	0.88	29.4	6.5	33.1	7.5	7.2	<0.001	0.06
Time 2 CDI	6.9	7.2	0.91	6.1	6.6	7.6	7.7	2.8	0.005	0.01
Time 2 STAI-C	30.0	7.5	0.90	28.0	6.5	31.6	7.9	6.8	<0.001	0.06

CRSS children's response style scale, *CDI* children's depression inventory, *STAI-C* state-trait anxiety inventory for children

replace the missing value with an expected value on the basis of how that particular individual responded to the other items of this questionnaire as well as how other individuals responded to the item on which a score was missing. As a consequence, the total number of individuals differs slightly between the various analyses (i.e., from 764 to 770). Third, mean scores on age and the questionnaires for the total group as well as for boys and girls separately are presented in Table 1. Except for age and distraction, significant sex differences were found on all self report measures, with girls displaying higher scores on these variables than boys. Effect sizes for the sex differences (i.e., partial η^2) were moderate (see Table 1).

Reliability of response styles

All self-report measures showed good internal consistency (see Table 1). Test–retest stability coefficients (i.e., intra-class correlation coefficients) for the response styles were reasonable for rumination (ICC = 0.72), distraction (ICC = 0.67), and the ratio score (ICC = 0.70). Finally, Pearson correlation coefficients between the various questionnaires are depicted in Table 2. Significant associations were found between all variables except for distraction.[1]

Table 2 Correlation matrix of the various questionnaires

	1	2	3	4	5	6
1. CRSS Rumination	–					
2. CRSS Distraction	0.14*	–				
3. Ratio score	0.59*	−0.62*	–			
4. Time 1 CDI	0.53*	−0.10	0.49*	–		
5. Time 1 STAI-C	0.59*	−0.04	0.46*	0.78*	–	
6. Time 2 CDI	0.46*	−0.12	0.46*	0.80*	0.65*	–
7. Time 2 STAI-C	0.57*	−0.04	0.45*	0.70*	0.80*	0.78*

CRSS children's response style scale, *CDI* children's depression inventory, *STAI-C* state-trait anxiety inventory for children. * $P < 0.001$

An empirical test of the RST

Separate hierarchical multiple regression analyses were conducted with Time 2 CDI or Time 2 STAI-C as the dependent variable. In both analyses, age and sex were entered in the first step, followed by Time 1 CDI or Time 1 STAI-C in the second step. Ratio scores were entered in the third step and the two-way interactions between ratio scores, age and sex were entered fourth. In the final step, the three way interaction between ratio scores, age and sex was entered. As can be seen in Table 3, the ratio scores significantly predicted increases in symptoms of depression and anxiety. To examine this relationship in more detail, residual change scores of depressive and anxiety symptoms were calculated. Low ratio scores were associated with decreases in symptoms of depression (predicted residual change score = −0.98) and anxiety (predicted residual change score = −1.15), whereas high ratio scores were related to increases in levels of depressive symptoms (predicted residual change score = 0.92) and anxiety (predicted residual change score = 1.10). Thus, in line with the response styles theory, individuals who have a greater tendency to ruminate compared to distraction show an increase in depressive symptoms over time, whereas a

[1] The association between depression (CDI) and anxiety (STAI-C) was relatively high, possibly threatening the discriminant validity of the scales. To deal with this issue, we conducted an exploratory factor analysis on items of the CDI and the STAI-C in order to obtain relatively pure depression and anxiety factors (see [7]). Items with salient double loadings (i.e., >0.30) were removed. In total, 18 out of 20 STAI-C items and 22 out of 27 CDI items were retained. The correlation coefficient between the reduced scales was 0.65 indicating less overlap. All analyses were conducted for the original scales as well as for the reduced scales. Similar results were found for the original and reduced scales. Therefore, the original scales were used in all analyses in order to be able to compare our findings to previous research.

Table 3 Associations of ratio score with symptoms of depression and anxiety over time

	Dependent variable	Predictor variable	β	SE (β)	t	P
Step 1 ($R^2 = 0.02$)	Time 2 CDI	Sex	0.10	0.03	2.74	0.006
		Age	−0.13	0.04	−3.54	<0.001
Step 2 ($R^2 = 0.59$)		Time 1 CDI	0.79	0.03	35.21	<0.001
Step 3 ($R^2 = 0.60$)		Ratio score	0.12	0.03	4.66	<0.001
Step 4 ($R^2 = 0.60$)		Ratio score × sex	−0.04	0.10	−0.44	0.66
		Ratio score × age	−0.07	0.14	−0.43	0.67
		Sex × age	0.02	0.05	0.16	0.88
Step 5 ($R^2 = 0.60$)		Ratio score × sex × age	0.21	0.28	0.32	0.75
Step 1 ($R^2 = 0.07$)	Time 2 STAI-C	Sex	0.24	0.04	6.86	<0.001
		Age	−0.11	0.04	−3.18	0.002
Step 2 ($R^2 = 0.62$)		Time 1 STAI-C	0.78	0.03	34.60	<0.001
Step 3 ($R^2 = 0.64$)		Ratio score	0.13	0.03	5.22	<0.001
Step 4 ($R^2 = 0.64$)		Ratio score × sex	0.06	0.09	0.62	0.54
		Ratio score × age	0.05	0.13	0.29	0.77
		Sex × age	−0.15	0.14	−0.99	0.32
Step 5 ($R^2 = 0.64$)		Ratio score × sex × age	−0.10	0.16	−0.15	0.88

CDI children's depression inventory, *STAI-C* state-trait anxiety inventory for children (alpha = 1%)

greater tendency to distract oneself compared to rumination results in a decrease in depressive symptoms over time. None of the interaction terms reached statistical significance indicating that the effects of the ratio scores on symptoms of depression and anxiety were not moderated by sex or age.

Discussion

The current study sought to test predictions of the RST [42] in a large sample of non-clinical children and adolescents. More specifically, a ratio score of rumination and distraction scores was utilized to examine the effect on depressive and anxiety symptoms over time [1]. Furthermore, the moderating effects of sex and age were also examined. The main findings can be summarized as follows. First, results showed that girls had higher scores than boys on rumination, but no significant sex differences emerged on distraction scores. Second, the ratio score was significantly associated with symptoms of depression and anxiety. More specifically and in line with the expectation, high ratio scores were positively associated with symptoms of depression and anxiety. That is, individuals who have a greater tendency to ruminate compared to distract oneself have increased depression and anxiety scores over time. As expected, low ratio scores significantly predicted depressive and anxiety symptoms. Thus, individuals who have a greater tendency to engage in distraction compared to rumination have decreased depression and anxiety symptoms over time. Age and sex did not moderate the relation between the ratio score and symptoms of depression and anxiety over time. Finally, test–retest stability of the response styles was reasonable.

The findings with respect to the association between the ratio score of response styles and symptoms of depression and anxiety are in line with the RST [42] and add to past research in two ways. First, findings of the current study concur with the findings of Abela et al. [1] and generalize to a community sample of children and adolescents. Note that the magnitude of the effects is somewhat smaller than obtained by Abela and colleagues. This may be due to the use of different self-report measures in both studies, the inclusion of problem-solving by Abela and colleagues in the ratio score, and to the differences in sample characteristics (e.g., high risk group vs. non-clinical youth). Second, the findings demonstrate that the use of a ratio score of response styles also has relevance for anxiety.

The effect of the ratio score of rumination and distraction was not moderated by age or sex. This may have a number of implications. First, our data suggest that there is no critical age at which response styles become manifest in predicting residual change in symptoms of depression and anxiety, which parallels findings from past research [1]. This implies that cognitive theories of vulnerability to depression can be applied to child and adolescent populations [3]. Further, the associations between response styles and symptoms of depression and anxiety were not different for boys compared to girls, although significant sex differences were found on response styles with girls having higher scores on rumination compared to boys. Noteworthy to mention, the RST posits sex differences on mean scores

of rumination and distraction, but does not assume that the relationships between response styles and symptoms of psychopathology are different for boys and girls.

This study also addressed test–retest stability of the response styles. According to the RST, response styles are considered stable, trait-like dispositions of responding to negative mood. Test–retest stability of response styles (i.e., rumination, distraction, and ratio score) over 8–10 weeks time was reasonable. Past research has mainly focused on the stability of rumination in adult samples. Our data on test–retest stability concur with findings from studies in which estimates of stability were largest in contexts where depression severity or depressed mood remained more or less the same over time [6].

The results from this study may have clinical implications. First, youngsters who are vulnerable to depression and anxiety should engage in distracting activities. Active distracting activities are already incorporated in behavioral activation interventions for depression [25, 33], which have shown efficacy [25, 26]. Other coping strategies that can be used to cognitively distract oneself from negative mood states should be examined, particularly with respect to attempts to escape from self-focused attention, which is common in rumination [10, 50]. A good example is task concentration training which has shown efficacy in adults with social phobia [9]. Excessive rumination should be targeted in treatment by means of cognitive restructuring techniques of cognitive therapy, which involves teaching individuals to challenge and to replace ruminative thoughts with more rational and adaptive ones. Cognitive interventions might also be directed to gaining control over ruminative thinking. Thoughts about the (un)controllability of rumination are negative metacognitive beliefs [51], which seem to contribute to depressive symptoms in adults. It remains to be determined whether these beliefs can also be identified and modified in youngsters. Finally, mindfulness therapy [54] and acceptance-based approaches [23] might also be helpful in changing the impact of ruminative thoughts by noticing ruminative activities in the mind without following and without judging them. This might prevent the associative network of negative thoughts from becoming activated and spiraling into rumination and subsequent depressive mood [50].

A number of limitations of the current study should be mentioned. First, the sample of this study involved non-clinical children and adolescents. Although the current findings replicate and extent findings obtained in a high-risk group [1], it remains to be seen whether the results generalize to clinical populations. Second, rumination and distraction were assessed with questionnaires that measure a dispositional style to ruminate and distract. Whether such dispositional measures represent on the spot ruminative and distractive activities in response to a negative event remains to be investigated. Third, the present study relied solely on self-report measures of youngsters to obtain information about children's and adolescents' levels of psychopathology. Future research could benefit from the inclusion of information from multiple informants (e.g., parents, school teachers) [15]. Finally, ethnicity of the participants and information about the parents such as social background, psychiatric diagnoses, and family composition were not assessed. Despite these limitations, the current data support the importance of rumination relative to distraction as a cognitive vulnerability factor for depression and anxiety. Future research should be aimed at bringing together various variables that are thought to play a role in juvenile depression and anxiety such as negative cognitive styles and puberty. The inclusion of life events and daily hassles makes it possible to contribute to a further understanding of depression and anxiety in youth within a diathesis-stress account.

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References

1. Abela JRZ, Aydin CM, Auerbach RP (2007) Responses to depression in children: reconceptualizing the relation among response styles. J Abnormal Child Psychol 35:913–927
2. Abela JRZ, Brozina K, de Haigh EP (2002) An examination of the response styles theory of depression in third- and seventh-grade children: a short-term longitudinal study. J Abnormal Child Psychol 30:515–527
3. Abela JRZ, Hankin BL (2008) Cognitive vulnerability to depression in children and adolescents: a developmental psychopathology perspective. In: Abela JRZ, Hankin BL (eds) Childhood and adolescent depression: causes treatment and prevention. Guilford Press, New York, pp 35–78
4. Abela JRZ, Vanderbilt E, Rochon A (2004) A test of the integration of the response styles theory and social support theories of depression in third and seventh grade children. J Soc Clin Psychol 5:653–674
5. Abbott MJ, Rapee RM (2004) Post-event rumination and negative self-appraisal in social phobia and after treatment. J Abnorm Psychol 113:136–144
6. Bagby RM, Rector NA, Bacchiochi JR, McBride C (2004) The stability of the response styles questionnaire rumination scale in a sample of patients with major depression. Cogn Ther Res 28:527–538
7. Bieling PJ, Antony MM, Swinson RP (1998) The state-trait anxiety inventory, trait version: structure and content re-examined. Behav Res Ther 36:777–788
8. Blagden JC, Craske MG (1996) Effects of active and passive rumination and distraction: a pilot replication with anxious mood. J Anx Dis 10:243–252
9. Bögels SM (2006) Task concentration training versus applied relaxation, in combination with cognitive therapy, for social phobia patients with fear of blushing, trembling, and sweating. Behav Res Ther 44:1199–1210
10. Bögels SM, Mansell W (2004) Attention processes in the maintenance and treatment of social phobia: hypervigilance, avoidance and self-focused attention. Clin Psychol Rev 24:827–856

11. Burwell RA, Shirk SR (2007) Subtypes of rumination in adolescence: associations between brooding, reflection, depressive symptoms, and coping. J Clin Child Adolescent Psychol 36:56–65
12. Chang EC (2004) Distinguishing between ruminative and distractive responses in dysphoric college students: does indication of past depression make a difference? Pers Individ Diff 36:845–855
13. Ciarrochi J, Scott G, Deane F, Heaven P (2003) Relations between social and emotional competence and mental health: a construct validation study. Pers Individ Diff 35:1947–1963
14. Ciesla JA, Roberts JE (2002) Self-directed thought and response to treatment for depression: a preliminary investigation. J Cogn Psychother 16:435–453
15. Comer JS, Kendall PC (2004) A symptom-level examination of parent–child agreement in the diagnosis of anxious youths. J Am Acad Child Adolesc Psychiatry 43:878–886
16. Cox BJ, Enns MW, Walker JR, Kjernisted K, Pidlubny SR (2001) Psychological vulnerability in patients with major depression versus panic disorder. Behav Res Ther 39:567–573
17. Driscoll KA (2004) Children's response styles and risk for depression and anxiety: developmental and sex differences. Unpublished Dissertation, Florida State University
18. Finch AJ Jr, Montgomery L, Deardorff P (1974) Reliability of state-trait anxiety with emotionally disturbed children. J Abnorm Child Psychol 2:67–69
19. Flett GL, Madorsky D, Hewitt PL, Heisel MJ (2002) Perfectionism cognitions, rumination, and psychological distress. J Ration Emotive Cogn Behav Ther 20:33–47
20. Fresco DM, Frankel AN, Mennin DS, Turk CL, Heimberg RG (2002) Distinct and overlapping features of rumination and worry: the relationship of cognitive production to negative affective states. Cogn Ther Res 26:179–188
21. Harrington JA, Blankenship V (2002) Ruminative thoughts and their relation to depression and anxiety. J Applied Soc Psychol 32:465–485
22. Harvey A, Watkins E, Mansell W, Shafran R (2004) Cognitive behavioural processes across psychological disorders: a transdiagnostic approach to research and treatment. Oxford University Press, Oxford
23. Hayes SC, Strosahl KD, Wilson KG (2003) Acceptance and commitment therapy: an experiential approach to behaviour change. Guilford, New York
24. Hilt LM, Cha CB, Nolen-Hoeksema S (2008) Non-suicidal self-injury in young adolescent girls: moderators of the distress–function relationship. J Consult Clin Psychol 76:63–71
25. Jacobson NS, Dobson KS, Truax PA, Addis ME, Koermer K, Gollan JK, Gortner E, Prince SE (1996) A component analysis of cognitive-behavioral treatment for depression. J Consult Clin Psychol 64:295–304
26. Jacobson NS, Martell CR, Dimidjian S (2001) Behavioral activation treatment for depression: returning to contextual roots. Clin Psychol Sci Pract 8:255–270
27. Just N, Alloy LB (1997) The response styles theory of depression: tests and an extension of the theory. J Abnorm Psychol 106:221–229
28. Kocovski NL, Endler NS, Rector NA, Flett GL (2005) Ruminative coping and post-event processing in social anxiety. Behav Res Ther 43:971–984
29. Kovacs M (1992) Children's depression inventory, CDI. Manual. Multi-Health Systems Inc., Toronto (Ontario)
30. Kuehner C, Weber I (1999) Responses to depression in unipolar depressed patients: an investigation of Nolen-Hoeksema's response styles theory. Psychol Med 29:1323–1333
31. Lam D, Smith S, Checkley S, Rijsdijk F, Sham P (2003) Effect of neuroticism, response style and information processing on depression severity in a clinically depressed sample. Psychol Med 33:469–479
32. Lara ME, Klein DN, Kasch KL (2000) Psychosocial predictors of the short-term course and outcome of major depression: a longitudinal study of a nonclinical sample with recent-onset episodes. J Abnorm Psychol 109:644–650
33. Lewinsohn PM, Antonuccio DO, Breckenridge JS, Teri L (1984) The coping with depression course. Eugene, OR, Castalia
34. Lyubomirsky S, Nolen-Hoeksema S (1993) Self-perpetuating properties of dysphoric rumination. J Pers Soc Psychol 65:339–349
35. Lyubomirsky S, Tucker KL, Caldwell ND, Berg K (1999) Why ruminators are poor problem solvers: clues from the phenomenology of dysphoric rumination. J Pers Soc Psychol 77:1041–1060
36. Miranda R, Nolen-Hoeksema S (2007) Brooding and reflection: rumination predicts suicidality at one-year follow up in a community sample. Behav Res Ther 45:3088–3095
37. Morrow J, Nolen-Hoeksema S (1990) Effects of responses to depression on the remediation of depressive affect. J Pers Soc Psychol 58:519–527
38. Muris P, Roelofs J, Meesters C, Boomsma P (2004) Rumination and worry in nonclinical adolescents. Cogn Ther Res 28:539–554
39. Muris P, Roelofs J, Rassin E, Franken I, Mayer B (2005) Mediating effects of rumination and worry on the links between neuroticism, anxiety, and depression. Pers Individ Diff 39:1105–1111
40. Muris P, Fokke M, Kwik D (2009) The ruminative response style in adolescents: an examination of its specific link to symptoms of depression. Cogn Ther Res 33:21–32
41. Nolen-Hoeksema S (1987) Sex differences in unipolar depression: evidence and theory. Psychol Bull 101:259–282
42. Nolen-Hoeksema S (1991) Responses to depression and their effects on the duration of depressive episodes. J Abnorm Psychol 100:569–582
43. Nolen-Hoeksema S (1998) Ruminative coping with depression. In: Heckhausen J, Dweck CS (eds) Motivation and self-regulation across the life span. Cambridge University Press, New York, pp 237–256
44. Nolen-Hoeksema S (2000) The role of rumination in depressive disorder and mixed anxiety/depressive symptoms. J Abnorm Psychol 109:504–511
45. Nolen-Hoeksema S, Girgus JS (1994) The emergence of gender differences in depression during adolescence. Psychol Bull 115:424–443
46. Nolen-Hoeksema S, Harrell ZA (2002) Rumination, depression, and alcohol use: tests of gender differences. J Cogn Psychother 16:391–403
47. Nolen-Hoeksema S, Morrow J (1991) A prospective study of depression and posttraumatic stress symptoms after a natural disaster: the 1989 Loma Prieta earthquake. J Pers Soc Psychol 61:115–121
48. Nolen-Hoeksema S, Morrow J (1993) Effects of rumination and distraction on naturally occurring depressed mood. Cogn Emot 7:561–570
49. Nolen-Hoeksema S, Stice E, Wade E, Bohon C (2007) Reciprocal relations between rumination and bulimic, substance abuse and depressive symptoms in female adolescents. J Abnorm Psychol 116:198–207
50. Nolen-Hoeksema S, Wisco BE, Lyubomirsky S (2008) Rethinking rumination. Perspect Psychol Sci 3:400–424
51. Papageorgiou C, Wells A (2004) Depressive rumination: nature, theory and treatment. Wiley, Chichester
52. Robinson LA, Alloy LB (2003) Negative cognitive styles and stress-reactive rumination interact to predict depression: a prospective study. Cogn Ther Res 27:275–292

53. Schwartz JAJ, Koenig LJ (1996) Response styles and negative affect among adolescents. Cogn Ther Res 20:13–36
54. Segal ZV, Williams JMG, Teasdale JD (2002) Mindfulness-based cognitive therapy for depression: a new approach to preventing relapse. Guilford, New York
55. Segerstrom SC, Tsao JCI, Alden LE, Craske MG (2000) Worry and rumination: repetitive thought as a concomitant and predictor of negative mood. Cogn Ther Res 24:671–688
56. Smith JM, Alloy LB, Abramson LY (2006) Cognitive vulnerability to depression, rumination, hopelessness, and suicidal ideation: Multiple pathways to self-injurious thinking. Suicide Life Threat Behav 36:443–454
57. Spasojevic J, Alloy LB (2001) Rumination as a common mechanism relating depressive risk factors to depression. Emotion 1:25–37
58. Spielberger CD (1973) Manual for the state-trait anxiety inventory for children. Consulting Psychologists Press, Palo Alto
59. Vaus D (2001) Research designs in social research. Sage Publications Ltd, London
60. Vickers KS, Vogeltanz-Holm ND (2003) The effects of rumination and distraction tasks on psychophysiological responses and mood in dysphoric and nondysphoric individuals. Cogn Ther Res 27:331–348
61. Ward A, Lyubomirsky S, Sousa L, Nolen-Hoeksema S (2003) Can't quite commit: rumination and uncertainty. Pers Soc Psychol Bull 29:96–107
62. Watkins E (2004) Appraisals and strategies associated with rumination and worry. Pers Individ Diff 37:679–694
63. Wood JV, Saltzberg JA, Neale JM, Stone AA, Rachmiel TB (1990) Self-focused attention, coping responses, and distressed mood in everyday life. J Pers Soc Psychol 58:1027–1036
64. Ziegert DI, Kistner JA (2002) Response styles theory: downward extension to children. J Clin Child Adolescent Psychol 31:325–334